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planalto, and its steep coastal border which constitutes the Serra do Mar. The region was baseleveled in the late Mesozoic, and the summits of the Serra do Mar which rise above the plateau level were probably more resistant granitic bosses which had not been reduced to the base plain. Uplifts in Tertiary and subsequent times have contributed to the present elevation and to the existing status of erosion.

The bulletin closes with a note on the changes of level on the coast of southern Chile. Starting out with the intention of studying the nature of the Pleistocene and Recent uplifting of the Chilean coast, first described by Charles Darwin, Woodworth failed to find good evidence of any extensive rise of the coast in Quaternary times. A late Pliocene or early Pleistocene uplift of about sixty feet at Valdivia, a late Pleistocene uplift of forty-five feet at Concepción, and a recent rise of lesser magnitude were indicated by these studies.

R. T. C.

“Formation of Coal Beds.” II. By JOHN J. STEVENSON. *Proc. Am. Phil. Soc.*, Vol. L, No. 202, 1911.

The author of this article has prepared a careful survey of the literature bearing on the origin of coal beds. He has presented much data regarding the origin and character of transported organic matter and discussed the significance of floods and torrents as eroding and transporting agencies. There are three major divisions of the subject:

1. Rainfall barely disturbs the cover of litter in a forest and the latter is practically uninjured by the heaviest rainfall. Rainfall does not remove soil covered by vegetation unless this mantle is ruptured. Torrents produce but slight effects upon the rocks or vegetation over which they flow unless they carry considerable débris; trees of small and large diameter resist mountain torrents that are even loaded with coarse débris. Where the torrents come from regions having a good mantle of vegetable matter they are practically free from inorganic load.

2. Descriptions of peat deposits are included under this head and data from widely scattered regions are brought together showing the geographic and stratigraphic position of the beds, the botanical constitution, the appearance, thickness, and degree of consolidation. Peat consists of more or less altered plant material whose organic texture is recognizable and of an inclosing substance evidently derived from complete decomposition of the plant tissues. This is all more or less mixed with sedimentary sand, clay, or calcareous matter. Peat always contains a large amount of water. The fact is pointed out that peat does accumulate in the tropics

where topographic conditions are combined with the right humidity. Many peat beds are crowded with successive generations of trees growing on and in the peat and producing thick deposits.

3. Examinations of existing and buried peat beds has shown that they consist in part of trees and other vegetation *in situ* and of some drift material which can be recognized by its conspicuous lack of tender parts. There seems to be no difficulty in recognizing buried forests as such, and attention is called to the fact that in many great forested swamps broken and overturned stems are well preserved, while the stumps which have remained exposed to atmospheric action have decayed. The bedding and conformable relations of the various members of the coal series eliminate the probability of landslides as a great factor in coal formation.

E. A. STEPHENSON

Bulletin of the Seismological Society of America. Vol. I, No. 4, and Vol. II, No. 1.

This is devoted largely to seismology but is of great interest to the geologist as well as the seismologist. No. 4 contains a good biographical sketch of Major C. E. Dutton, an article on "Earthquake Epicentres," one on "Displaced Objects in Earthquake Motion," and an excellent contribution on some Canadian post-glacial faults, also many notes on recent earthquakes.

No. 1 of Vol. II contains biographical notes on Professor George Davidson and Professor John Milne, seismologist. Mr. Reid's article on the choice of a seismograph is interesting and valuable. The greater part of this number is devoted to a discussion of destructive earthquakes in China.

E. A. S.